

Texas Tech University. Department of Mathematics and Statistics. Colloquium.

# Parabolic Obstacle-Type Problems

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Room: CH 113. Time: 3:30pm.

**ABSTRACT.** Many problems in physics, biology, finance, industry and other areas can be described by partial differential equations that exhibit a priori unknown sets such as moving boundaries, interfaces, etc. The study of such sets, also known as free boundaries, often plays a central role in the understanding of such problems.

In this talk we present a short survey on the special class of the parabolic free boundary problems, which is called the obstacle-type problems. We discuss the different aspects of evolution obstacle-type problems near a fixed boundary, such as the optimal regularity of solutions, the study of blow-ups, and the regularity of the free boundary.

The lecture is based on works in collaboration with Nina Uraltseva, Henrik Shagholian and Norayr Matevosyan.